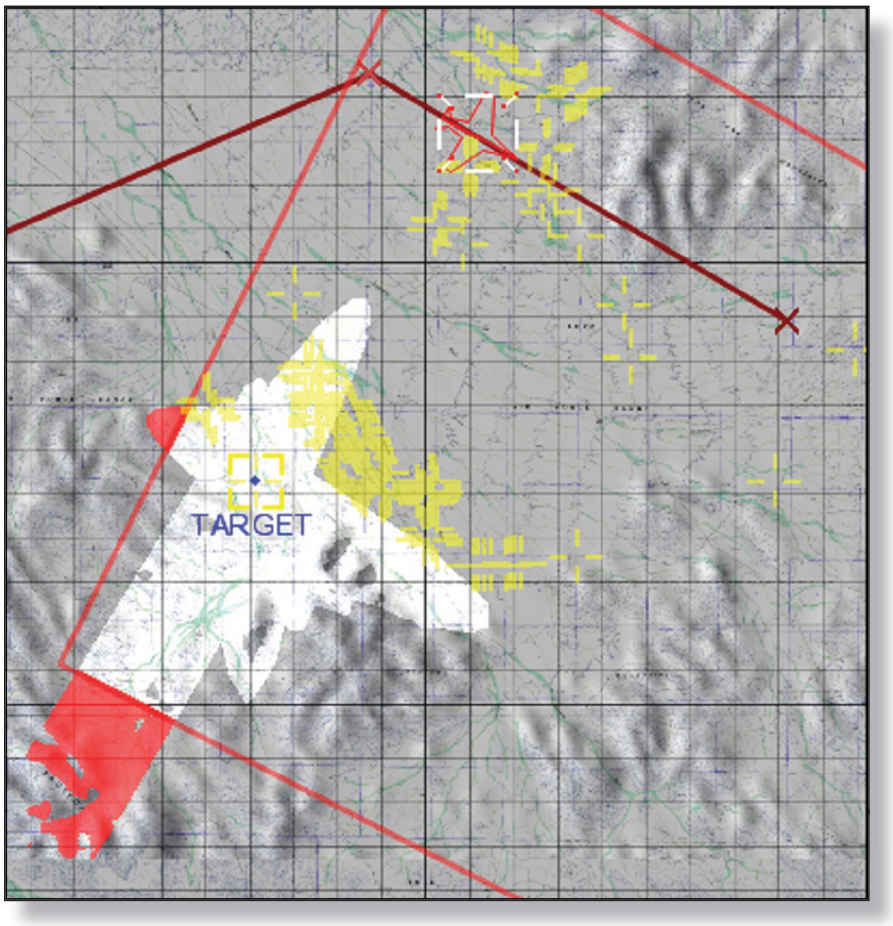
Air Force Research Laboratory|AFRL

Science and Technology for Tomorrow's Air and Space Force

Success Story

LASER RANGE MANAGEMENT SOFTWARE FIELDED AT OVER 45 RANGES WORLDWIDE



The Human Effectiveness Directorate's Optical Radiation Branch at Brooks City-Base, Texas, built a Laser Range Management Software (LRMS) system that allows for safe, realistic engagement with directed energy systems. LRMS combines technology and military combat tactics to identify laser surface danger zones on digital terrain range maps. The software provides operational planners the capability to develop missions that integrate the use of safe combat laser tactics.

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Accomplishment

The LRMS, running from a personal computer, calculates the laser surface danger zone (LSDZ), allowing aircrew to receive the most realistic laser delivery training. It provides visualization of LSDZs to avoid overlap of endangered species sanctuaries, manned positions, and/or uncontrolled land on a two-dimensional terrain map. Aircrew can effectively use laser designators and illuminators without fear of inadvertent injury to themselves or ground personnel. LRMS provides LSDZs for ground-to-ground and air-to-ground laser engagements so aircrew can also train with ground forward air controllers who designate and illuminate targets. The software has also provided a basis for future research developments in advanced risk analysis.

LRMS is utilized at more than 45 Department of Defense ranges worldwide. The software is also used to perform more effective and efficient laser range safety surveys. LRMS reduces the size of old hand-drawn range LSDZs with greater accuracy and saves the range community $70K a year in laser range analysis time. Savings are increased with the continual creation of additional training ranges and drastic modifications to current ranges. Over the past 10 years the cost and time to complete a range survey has been reduced by about 40%.

Background

The use of military and commercial laser systems has grown rapidly during the last few years. Military lasers used by friendly forces provide a significant advantage in accomplishing military missions. Laser designators are a significant force multiplier that reduces the risk to aircrew and materiel. Laser illuminators and pointers allow aircrew, special operations, tactical ground personnel, and others to identify targets, enhance survivability, and reduce risk in combat. Effectiveness in combat requires realism in training.

A software solution was needed to help the range users train as they fight, using laser target designators for precision-guided weapons. In addition, the software must allow for the effective planning of range usage and quick-test mission safety planning, as well as to act as a training tool for laser safety.

Human Effectiveness
Support to the Warfighter

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-HE-29)